Inventory and Analysis

Environmental Conditions

The examination of significant environmental factors is the key to determining those areas of the County that can support urban uses and those areas that should be preserved and managed as significant environmental resources. Environmental factors analyzed for this plan include:

- Floodplains, Wetlands and Aquifer Recharge Areas
- Prime Agricultural Lands and Forested Areas
- Soils
- Earthquake Potential and Special Limitation Sites
- Drainage

Floodplains, Wetlands and Aquifer Recharge Areas – Floodways and floodplains are areas within which a 100 year flood occurrence can be contained. Floodways include the stream channel and its immediate environment. Floodplains are determined based on elevation and topographic conditions. While building has been allowed in floodplains in the past in Shelby County, construction in these areas is not recommended due to potential loss of property and life.

Shelby County includes a special category in its Zoning Ordinance that designates floodplains (FP). No construction is allowed in these areas without special mitigation measures. In no instance is construction permitted in floodway zones (FW).

In many cases, floodways and floodplains are also wetland areas. Wetland areas serve as wildlife habitats, aid in purifying ground water and contribute to the reduction of flood impacts. Under State and Federal law, wetlands generally cannot be built upon without mitigating measures being taken by the developer. Floodway, floodplain and wetland areas are appropriate for greenbelts, open space and agricultural uses.

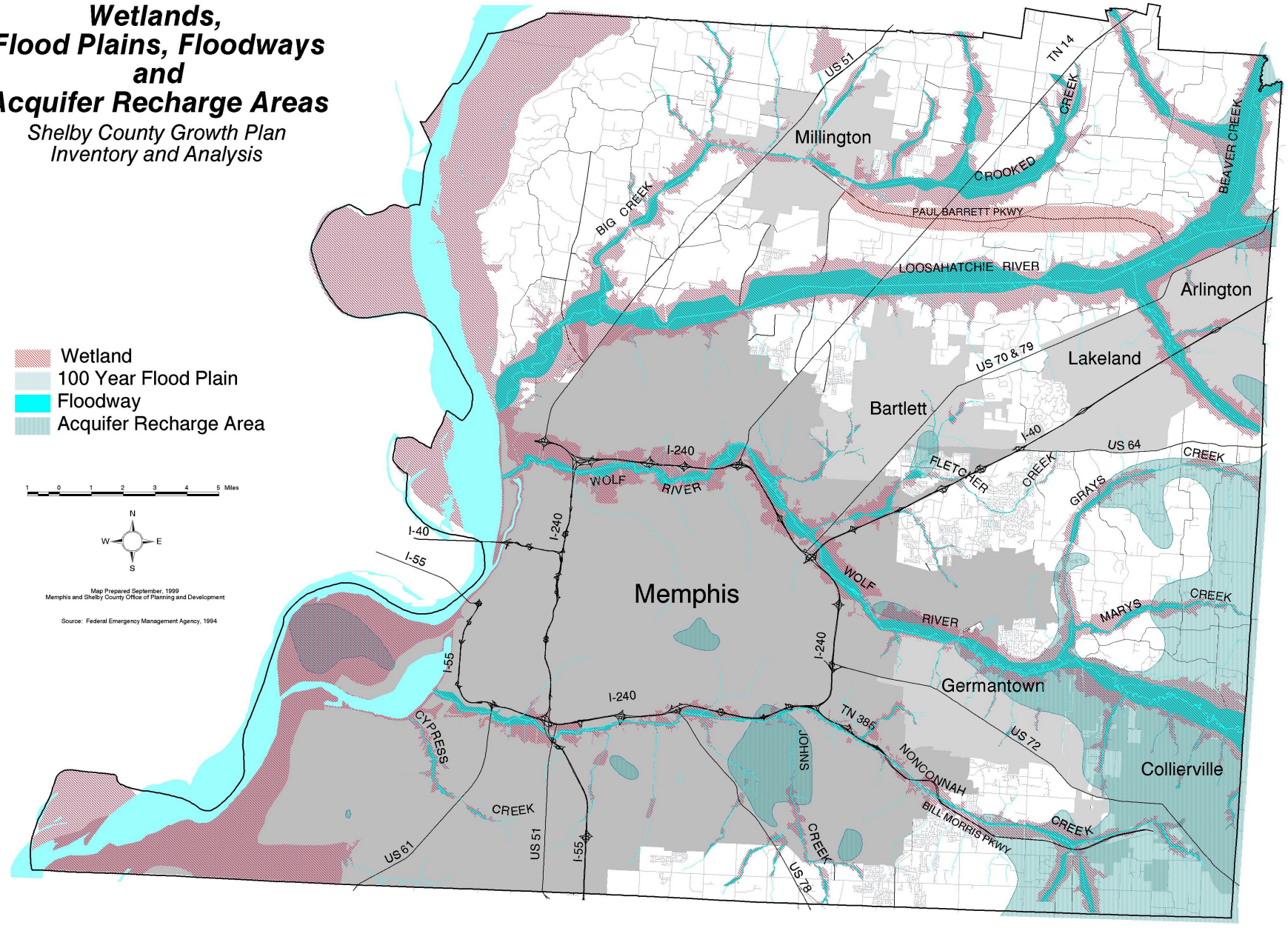
In Shelby County these areas follow the courses of major rivers and streams and are present in all quadrants of the study area. The major concentrations of wetland areas are along the Mississippi, Wolf and Loosahatchie Rivers and the Nonconnah, Big and Crooked Creeks.

Aquifer recharge areas are the points of interchange between surface water and aquifers. Both residential development on septic systems and agricultural uses must be monitored and regulated in aquifer recharge areas to protect the supply of drinking water from pollution.

Floodways, floodplains, wetlands and aquifer recharge areas are illustrated on Map 2.

Wetlands, Flood Plains, Floodways and Acquifer Recharge Areas

Shelby County Growth Plan
Inventory and Analysis



Prime Agricultural Land and Forested Areas – The preservation of significant forested areas and prime agricultural land in rural areas is dictated by Chapter 1101. In conducting the analysis for this plan, contiguous forested areas of over 50 acres, large tracts of publicly owned forested areas and contiguous tracts of actively farmed land of over 50 acres on suitable soils were considered to be major environmental determinants.

In Shelby County large tracts of forested areas are generally located in floodplain areas and along steep slopes. Prime agricultural land is scattered throughout the County with the largest concentrations in the northeast and northwest quadrants.

The most significant stand of forest is located in the northwest portion of the County and consists of the State owned Shelby Forest and its immediate environs. Large tracts of forestland are also located along the major rivers.

Public Chapter 1101 dictates that areas such as Shelby Forest be protected from urban uses. Significant non-public forested lands should be restricted to low density development and planned open space. In any instance, development in areas currently in forest should be strictly controlled through adoption and implementation of a tree ordinance.

Prime agricultural land in Shelby County should be considered that land in active cropland located on highly suitable soils. Agricultural land not in cropland on soils able to bear high density construction is suitable for urban development. Given the population projections and extension of urban services throughout the County, it is clear that some agricultural land will be absorbed for urbanization.

Prime agriculture and forested areas are shown on Map 3.

Soils – An examination of soil types and their characteristics is important in determining the intensity of development that should be allowed in any particular area of the County. In Shelby County the United States Department of Agriculture (USDA) has identified seven major soil types.

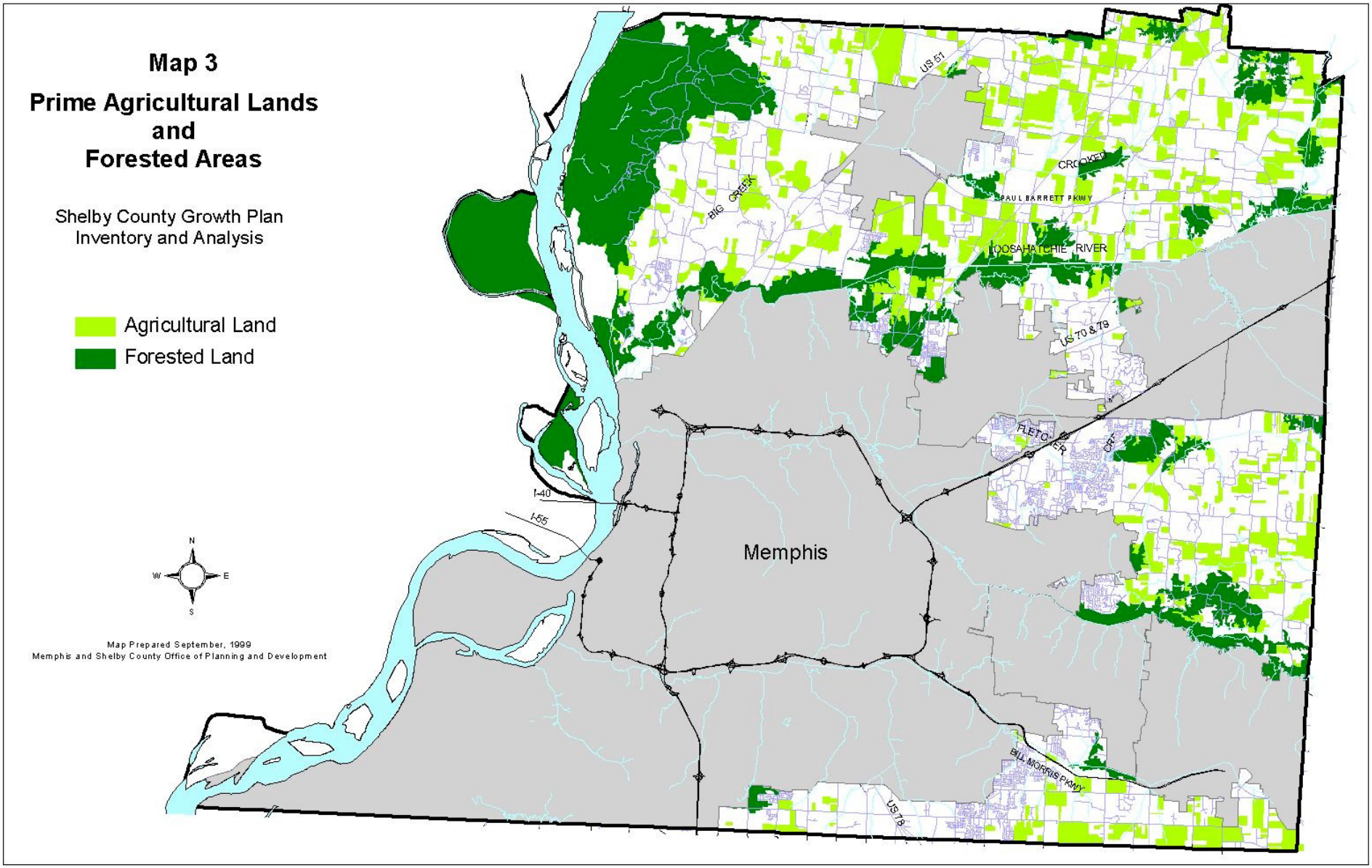
Three types of soils are characterized by the USDA as suitable for high density urban development. They are the Grenada-Calloway and Grenada-Memphis soils generally located in the eastern and southeastern areas of the County, and the Memphis-Grenada soils generally encompassing the current city limits of Memphis, Millington and Bartlett and extending to the northeastern portion of Shelby County.

The USDA characterizes four types of soils in the County as unsuitable for high density urban development. Three of these soil types are generally located along the Mississippi River floodway and extend across the northwest portion and in the extreme southwest area of the County (Robinson, Tunica and Memphis). The Flaya soil type is also

Map 3

Prime Agricultural Lands and Forested Areas

Shelby County Growth Plan
Inventory and Analysis



Map Prepared September, 1999
Memphis and Shelby County Office of Planning and Development

unsuitable for urban development and is located along the floodplains of the major rivers and creeks.

Map 4 illustrates Generalized Soil Associations.

Seismic Hazards and Special Limitation Sites – The Central United States Earthquake Consortium (CUSEC) has estimated where earthquake damage may be potentially severe in Shelby County. CUSEC has determined that steep slopes, sandy soils and alluvial soils (those located within floodplains) are least able to withstand the impacts of a significant earthquake. Areas along the Mississippi River, central portions of the City of Memphis and areas within the Big Creek drainage basin have the highest earthquake risk factor in Shelby County.

The risk of seismic hazards is much less in the east central and southeast areas of the County. There is a moderate risk factor from the northeast quadrant of the County southwesterly to the Mississippi State line.

Special limitation sites are generally characterized as those areas where degradation of the environment has occurred through manmade actions. These sites include numerous Superfund sites. Superfund sites are locations determined by the Federal government to be places where hazardous chemicals and other environmentally toxic substances were discharged into the ground and watercourses. Also included in this category are gravel pits and mines and landfill sites. Most active and inactive mining sites are located in the northeastern portion of the County. Superfund sites are located throughout the County, but occur most often in the northwest to north central portion of the County between Millington and the City of Memphis.

Seismic hazards are shown on Map 5.

Drainage – An analysis of drainage basins is extremely important in establishing the extent and timing of urban development. Drainage basins determine where sewer service can and will be delivered. The planned extension of sewer service generally indicates an expectation of moderate to high density residential development.

There are four major drainage basins in Shelby County. They are the Wolf River basin, the Loosahatchie River basin, the Nonconnah Creek basin and the Big Creek basin.

Planned expansion of sewer service generally is within sub-basins of these major river basins. The extension of urban growth is normally determined by the location of drainage basins.

Map 6 illustrates the major river basins and sub-basins in Shelby County.